IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	Volkert A. Zeijlemaker	Examiner:	Ruth S. Smith
Serial No.	10/673,778	Group Art:	3737
Filing Date:	29 September 2003	Docket No.:	P0010498.00
		Conf. No.:	2478
Title:	CONTROLLING BLANKING DURING MAGNETIC RESONANCE IMAGING		

PRE-APPEAL BRIEF REQUEST FOR REVIEW

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In response to the Final Office Action dated February 16, 2010, Applicant respectfully requests review of the current application in view of the errors in the Examiner's rejections described in the following remarks.

In the Final Office Action, the Examiner maintained the rejection of claims 1, 3-5, 7-12, 15, 17-21, 23-33, under 35 U.S.C. § 103(a) as being unpatentable over Foster et al. (U.S. 6,925,328, hereinafter "Foster") in view of Weisner et al. (U.S. 7,024,249) or Burnes et al. (U.S. 2003/0195571) or Ferek-Petric (U.S. 2003/0204161). The Examiner's rejection of the currently pending claims is erroneous.

Applicant initially notes that Burnes and Ferek-Petric are disqualified as prior art under 35 U.S.C. § 103(c). Applicant's application was filed on September 29, 2003. Burnes published on October 16, 2003 and thus qualifies as prior art under section 102(e). Likewise, Ferek-Petric published on October 30, 2003 and thus qualifies as prior art under section 102(e). Burnes, Ferek-Petric and the current application were owned by the same person or subject to an obligation of assignment to the same person at the time the claimed invention was made. As such, Burnes and Ferek-Petric are disqualified as

prior art under section 103(c). Applicant's arguments below therefore focus on the rejection of Applicant's claims over Foster in view of Weisner.

As another initial matter, Applicant notes that the Examiner has failed to establish a prima facie case of anticipation or obviousness with respect to Applicant's independent claim 31. The Examiner groups the rejection of claim 31 with independent claims 1, 11 and 23. However, Applicant's independent claim 31 includes a number of features not recited in Applicant's independent claims 1, 11 and 23. For example, the Examiner has failed to provide a reference or references that disclose a system comprising a programmer device defining timing for application of a magnetic resonance imaging (MRI) electromagnetic radiation burst and generating first and second signals indicative thereof. The Examiner has failed to provide a reference or references that disclose an MRI device responsive to the first signal and applying the electromagnetic radiation burst according to the timing indicated by the first signal and an implantable medical device (IMD) to receive the second signal from the programmer and blank one or more components of the IMD for a time period including at least the application of the MRI electromagnetic radiation burst. Because the Examiner has failed to provide a reference to provide a prima facie rejection, the rejection of claim 31 is clearly erroneous in fact.

The rejection of independent claims 1, 11 and 23 are also erroneous. With respect to these claims, the Office Action indicated that Foster discloses an IMD in combination with an MRI device, whereby some of the components of the IMD are disabled during an MRI scanning session. The Office Action characterized FIG. 5 of Foster as disclosing the MRI device generating signals that are detected by the IMD and the signals are evaluated to determine whether or not to disable portions of the IMD. The Office Action acknowledged that Foster fails to disclose the use of wireless telemetry to send control signals to the IMD. To satisfy this shortcoming, the Office Action characterized Weisner as disclosing the use of control signals to control implantable medical devices through wireless telemetry. The Office Action therefore concluded that it would have been obvious to one of ordinary skill in the art to have modified Foster such that the control

signals used to indicate the activation of the MRI pulse sequence are sent using wireless telemetry.

In the Response to Arguments, the Examiner further clarified her position, indicating:

> "Foster et al clearly disclose that the circuitry of the MR instrumentation activates a trigger voltage. Thereafter (approx. 3 seconds) the circuitry activates transmission of Rf coil pulses. The trigger voltage is used to deactivate the IMD. The trigger voltage causes the parallel resonant circuit to be formed which functions as an open switch at resonant frequencies of the circuit. This is considered to provide a means for blanking the IMD in response to a control signal because the IMD is eventually deactivated as a result of the control signal."

The activation of the trigger voltage is not a control signal received by the IMD prior to delivery of an electromagnetic radiation burst to a patient in whom the IMD is implanted and that causes blanking of one or more components of the IMD responsive to receipt of the control signal. If the trigger voltage is considered to be the control signal (as suggested by the Examiner), the IMD of Foster does not **blank** one or more components of the IMD **responsive to receipt** of the control signal, as recited in Applicant's claim 1.

As described in FIG. 5 of Foster, the trigger voltage simply causes a parallel-resonant circuit to be formed. *Foster, col. 10, lines 15–25.* The parallel resonant circuit does not blank one or more components of the IMD. For example, signals at frequencies away from the resonant frequency of the parallel-resonant circuit are not blocked by the circuit and may still be received by the components of the IMD. As such, the IMD does not blank one or more components **responsive to receipt** of the control signal, as required by Applicant's claim 1. Instead, Foster indicates that parallel-resonant circuit is functional **only** when the resonant condition is met. *Foster, col. 10, lines 15–25.* In other words, to the extent that forming a parallel-resonant circuit may be considered blanking at all, the parallel resonant circuit does not blank the circuitry until a signal at or near the resonant frequency is received, i.e., responsive to the RF pulses of the MRI. This is different than blanking the one or more components responsive to receipt of the control signal.

Moreover, the signals detected by the IMD in Foster are not control signals received via wireless telemetry. The Office Action acknowledged as much by indicating that Foster does not disclose the use of wireless telemetry to send control signals to the IMD. As mentioned above, however, the Office Action attempts to overcome this deficiency with the teachings of Weisner of the use of control signals to control the IMD through wireless telemetry. For the reasons set forth below, however, there is no rational reason as to why one of ordinary skill in the art would not modify the teachings of Foster in view of teachings of Weisner as suggested by the Examiner. In the Response to Arguments, the Examiner dismisses Applicant's arguments by stating that "one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references." Applicant disagrees. Applicant is not attacking the references individually, but is showing why one of ordinary skill in the art would have no rational reason to combine the references as suggested by the Examiner.

Foster does not describe the MRI device communicating with the IMD via wireless telemetry or otherwise intelligibly communicating with the IMD. Weisner describes a programming device, not an MRI device, communicating with the IMD via wireless telemetry. Programming devices primarily operate to configure settings of an IMD or receive sensed data from the IMD while MRI devices operate to generate images of internal structure and function of a body of a patient and are not conventionally configured to perform wireless telemetry communication with an IMD. As such, there is no rational reason that one of ordinary skill in the art would modify Foster, which teaches a conventional MRI device that has no mechanism for wireless telemetry with the IMD, to include wireless telemetry between the MRI device and the IMD.

Even if the references were combined as suggested, however, such a modification would still fail to arrive at the features of Applicant's claim 1 for the reasons set forth above with respect to Foster. In particular, the control signal sent via wireless telemetry would simply cause a parallel-resonant circuit to be formed. The parallel resonant circuit, however, does not function to blank any components until a signal at or near the resonant frequency is received, i.e., responsive to receipt of the RF pulses of the MRI.

Therefore, the IMD still would not blank one or more components responsive to receipt of the control signal, as required by Applicant's claim 1. For at least the reasons described above with respect to claim 1, Foster fails to disclose the limitations of claims 11 and 23, and provides no rational reason that would have suggested the desirability of modification to arrive at the claimed features of claims 11 and 23.

Foster and Weisner also fail to disclose or suggest a number of the features set forth in Applicant's dependent claims as indicated in Applicant's previous replies. With respect to dependent claim 42, for example, Foster fails to disclose or suggest blanking one or more components of the IMD for a time period beginning prior to and including delivery of the electromagnetic radiation burst to the patient. Instead, FIG. 5 of Foster describes a parallel resonant circuit that functions as an open switch **only** in response to a signal at or near the resonant frequency of the circuit. *Foster, col. 10, lines 15–25.* In this manner, the parallel resonant circuit only functions as an open switch during actual application of the RF pulses by the MRI device, not **prior to** the delivery of the electromagnetic radiation bursts, as recited in Applicant's claim 42. As such, it is not possible to expand the blanking period as suggested by the Examiner to include a few seconds before the RF pulses are applied.

For at least these reasons, the rejections of Applicant's claims are erroneous in fact. The Examiner's rejection omits one or more essential elements needed for a prima facie case of obviousness of at least one of Applicant's claims. In view of the above, it is submitted that the application is in condition for allowance. Applicant respectfully requests that the application be allowed on the existing claims or, in the alternative, that prosecution on the merits is reopened and an appropriate Office communication be issued.

Respectfully submitted,

May 14, 2010
Date

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